Building a **bold legacy** of Successful Partnerships

Marshall is building on a long legacy of successful, mutually beneficial partnerships to lead NASA and the nation into a rewarding future in space. The Center's collaborations with other NASA centers and federal agencies, academia and industry aid programs and projects across all business lines — supporting technology development, research, testing, and ground and flight operations.

The Partnerships Office is available to help potential partners explore opportunities by listening to your needs, conveying relevant Marshall capabilities, and ultimately connecting partners to the right technical points of contact for more in-depth collaboration.

Small Business Innovation Research (SBIR) + Small Business Technology Transfer (STTR)

These programs provide small, high-tech companies and research institutions opportunities to participate in government-sponsored research and development efforts in key technology areas, facilitating innovations that also have potential commercial applications and thereby contributing to the overall NASA Mission. As small businesses work to meet NASA's research and development needs, they stimulate growth in local economies and nearby business communities.

SBIR/STTR programs are guided by the following principles:

- To stimulate U.S. technological innovation
- To increase private sector commercialization of technologies developed through federal research and development programs
- To increase small business participation in federal research and development
- To foster and encourage participation by socially disadvantaged businesses

IMPACT of NASA Investments in SBIR/STTR

$159M Investment > 3,784 Jobs Generated > $632M Economic Impact

NASA SBIR/STTR 2012 Economic Impact Report: http://sbir.gsfc.nasa.gov/

Patenting a Bold Future

- MSFC currently has **159** patents
- FY13 Patents: **18**
- FY13 Patents Applications: **11**

Technology Transfer

Marshall's valuable innovations in technology are made accessible to the public for scientific, academic, industrial, and commercial use. Technologies are routinely evaluated for commercial potential so that the technologies best suited for commercialization are patented, marketed and made available. Licensees that successfully integrate a Marshall-patented technology towards the development of a commercial product become spinoff technologies.

BioServe Space Technologies — a nonprofit, NASA-sponsored research partnership center — developed a leaf sensor that can monitor plants using electrical pulses, allowing anyone from astronauts to farmers to measure plant water levels directly. Berthoud, Colorado-based AgriHouse Brands Ltd. has commercialized the technology, which allows "thirsty" plants to send text messages to farmers asking for more water.

To better detect aluminum compounds, Marshall Space Flight Center partnered with KeyMaster Inc. (later acquired by Madison, Wisconsin-based Bruker AXS Inc.) to develop a vacuum pump system that could be attached to X-ray fluorescence (XRF) scanners. The resulting technology greatly expanded XRF scanner capabilities, and hundreds of museums now use them to authenticate artifacts and works of art.

Spinoff Facts

- In the last five years alone, Marshall generated more than 60 technologies featured as NASA spinoffs.
- Marshall research has benefited firefighters, farmers, plumbers, healthcare providers, soldiers, teachers, pilots, divers, welders, architects, photographers, city planners, disaster relief workers, criminal investigators, and even video-gamers and golfers.
- Marshall's Technology Transfer Office was recognized as one of Alabama's Top Ten Patent Leaders in 2013 by Economic Development Partnership of Alabama.

http://spinoff.nasa.gov